

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A cooling element, ~~in particular~~ for use in walls of furnaces that are subjected to high levels of thermal stress, with ~~consisting of~~ cast copper or a low-alloyed copper alloy, and with coolant channels which comprise tubes cast in the copper or the copper alloy and are arranged inside the said cooling element, wherein ~~characterized in that~~ the tubes of the coolant channels are copper tubes provided with an ~~electrolytic~~ electrodeposited nickel coating on their outer side.

2. (Canceled)

3. (Currently amended) The cooling element as claimed in claim 1, wherein ~~or claim 2, characterized in that~~ the thickness of the coating is between 3 and 12 μm , ~~preferably between 6 and 10 μm .~~

4. (Currently amended) The cooling element as claimed in

claim 1, wherein ~~characterized in that~~ the tubes are copper-nickel tubes with a copper content of 30 to 70wt% and a nickel content of 20 to 65wt%, and ~~in that~~ the coating is a copper coating.

5. (Currently amended) A method for producing a cooling element provided inside with coolant channels formed from tubes, ~~in particular~~ for use in walls of furnaces that are subjected to high levels of thermal stress, with the steps of

a) fabricating the tubes ~~tube~~, including all desired curves, branches and similar flow structures,

b) casting molten copper or copper alloy around the tubes within a casting mold, ~~with preferably simultaneous cooling of the inner walls of the tubes,~~

c) cooling the copper melt,

wherein during ~~characterized in that in~~ the fabrication of the tubes at least those regions of the outer sides of the tubes around which the copper or the copper alloy is later cast are electrolytically coated with nickel.

6. (Currently amended) The method as claimed in claim 5, wherein ~~characterized in that~~ the tubes are coated only after the desired form of tube has been fabricated.

7. (Currently amended) The method as claimed in claim 5, ~~wherein or claim 6, characterized in that~~ the outer sides of the tubes are mechanically blasted before the coating, ~~preferably by blasting with coarse glass granules.~~

8. (Currently amended) The method as claimed in claim 5, ~~wherein one of claims 5 to 7, characterized in that~~ the coated outer sides of the tubes are degreased, ~~preferably by cleaning with acetone,~~ before the tubes are surrounded by casting.

9. (Canceled)

10. (Currently amended) The method as claimed in claim 5, ~~wherein one of claims 5 to 9, characterized in that~~ the thickness of the electrodeposited layer is between 3 and 12 μm , ~~preferably between 6 and 10 μm .~~

11. (Currently amended) The method as claimed in claim 5, ~~wherein one of claims 5 to 8, characterized in that~~ the tubes used are copper-nickel tubes with a copper content of 30 to 70wt% and a nickel content of 20 to 65wt%, and ~~in that~~ the coating of the outer sides of the tubes takes place in an electrolytic

copper bath.

12. (Currently amended) The method as claimed in claim 11, wherein ~~characterized in that~~ the copper-nickel tubes used have a copper content of 31wt% and a nickel content of 63wt% (Monel tubes).

13. (New) The cooling element as claimed in claim 3, wherein the thickness of the coating is between 6 and 10 μm .

14. (New) The method as claimed in claim 7, wherein the outer sides of the tubes are mechanically blasted with coarse glass granules before the coating.

15. (New) The method as claimed in claim 8, wherein the coated outer sides of the tubes are degreased by cleaning with acetone before the tubes are surrounded by casting.

16. (New) The method as claimed in claim 10, wherein the thickness of the electrodeposited layer is between 6 and 10 μm .